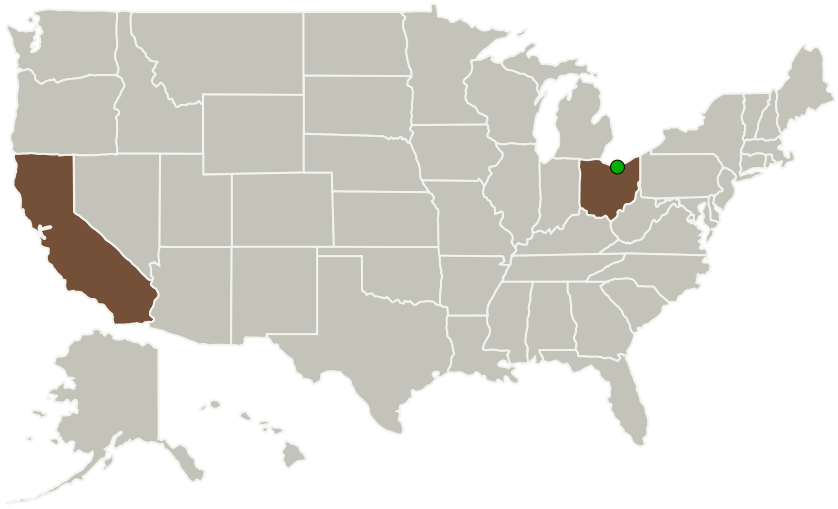
Lightweight IMM Multi-Junction Photovoltaic Flexible Blanket Assembly, Phase II

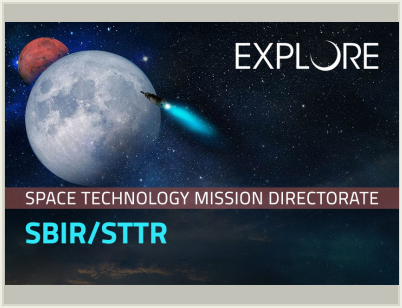
Completed Technology Project (2011 - 2013)

Project Introduction

DSS's recently completed successful NASA SBIR Phase 1 program has established a TRL 3/4 classification for an innovative IMM PV Integrated Modular Blanket Assembly (IMBA) that can be rolled or z-folded and enables NASA's emerging high voltage solar electric propulsion (SEP) missions. Significant concept feasibility, design/analysis, trade study/evaluation, and proof-of-concept hardware build/test efforts executed during the NASA SBIR Phase 1 program have validated DSS's IMM PV IMBA technology as a potentially revolutionary flexible photovoltaic blanket assembly that provides high performance in terms of; high voltage operability, high specific power / lightweight (>1000 W/kg BOL at the blanket subsystem level, and >500 W/kg BOL at the array level), compact stowage volume (>50 kW/m3 BOL), rollable or z-foldable for stowage, reliability, modularity & rapid production, flexibility/durability and robustness, affordability, and adaptability to all existing industry flexible blanket solar array products. DSS's IMBA technology also accommodates standard ZTJ PV device technologies to provide significantly improved performance over current state-of-the-art.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Project Transitions

June 2011: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139033)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Deployable Space Systems, Inc (DSS)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Brian R Spence

Co-Investigator:

Brian Spence

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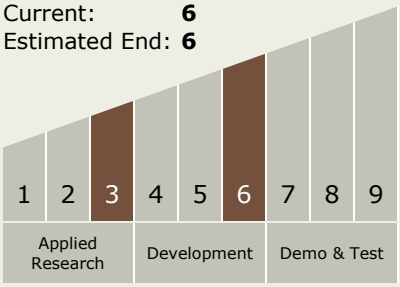
Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.1 Power Generation and Energy Conversion
    - TX03.1.1 Photovoltaic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System